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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/330,593	06/11/1999	DANIEL R. POLONENKO	41615-A	9617

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EXAMINER

GRUNBERG, ANNE MARIE

ART UNIT

PAPER NUMBER

1661

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/330,593

Applicant(s)
Daniel Polonenko et al.

Examiner
Anne Marie Grunberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 26, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-20, 22-43, 45-49, and 53-57 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-20, 22-43, 45-49, and 53-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

1. Claims 1-4, 21, 44, and 50-52 have been canceled. Claims 5-20, 22-43, 45-49, and 53-57 are pending.
2. The text of those sections of Title 35, U.S. code not included in this action can be found in a prior Office action.
3. Claim 17 is dependent on a canceled claim. It would appear that Applicant intended to cancel or amend the claim such that the dependency is directed to either claim 53 or claim 57.

Claim Rejections

4. Claims 53 and 57 are provisionally rejected under the obviousness-type double patenting (newly applied) as being unpatentable over the claims of allowed Application No. 09/330,594 for the reasons stated in the last office action. Claim 1 of the instant application was originally provisionally rejected, but was canceled.

Applicant argues that since claim 1 has been canceled for other reasons that the rejection is now moot.

This argument has been carefully considered but is not considered persuasive as it pertains to claims 53 and 57 which are basically variants of canceled claim 1. Although the

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conflicting claims are not identical, they are not patentably distinct from each other because the process for germinating somatic embryos claimed in the present application utilizes the process for germinating somatic embryos claimed in Application No. 09/330,594.

5. Claim 45 remains provisionally rejected under the obviousness-type double patenting as being unpatentable over claims 1-35 of Application No. 09/550,110 for the reasons stated in the previous action.

Applicant argues that the specific process is not disclosed in the copending application because the copending application relates to the growing of nutriprimed embryos not disclosed in the present application. Applicant further argues that each procedure starts with a somatic embryo produced in a different manner.

This argument has been carefully considered but is not deemed persuasive for the following reasons:

Nutriprimed embryos are embryos wherein aqueous nutrients are added to the embryo. The application of nutrient solutions is claimed in claim 53 upon which claim 45 depends.

The manner in which a somatic embryo is produced is irrelevant as the claims are drawn to a process of germinating a somatic embryo and growing it into a seedling.

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6. Claims 5, 10-11, 15-20, 24-28, 30, 45, and 53-57 remain rejected under 35 U.S.C. 102(b) as being anticipated by Dupuis et al.

Applicants argue that Dupuis et al uses a two-phase medium (solid and air). They further argue that Dupuis et al do not teach placing embryos on a three phase substrate and the substrate does not contain nutrients necessary for *ex vitro* germination. Applicants also maintain that Dupuis et al do not teach applying nutrients by fogging, misting, or irrigation. Applicants also maintain that Dupuis et al do not teach a non-sterile substrate.

These arguments have been carefully considered but are not considered persuasive for the following reasons:

The instant specification does not define a three-phase substrate except to state that the phases comprise solid, liquid and gas phases. It is widely known in the art that gel contains water as well as a solute. The water is released over time to the plants and thus is not completely a solid, but consists of a liquid phase as well (see for example, Carlson et al., 5,486,218, column 6, lines 37-67). The specification also does not state that the three phases must occur simultaneously. As a result, water can be a three-phase substrate; ice as a solid, water as a liquid, and water vapor as a gas. The specification is very vague as to what constitutes a “three-phase” substrate, although soil and horticultural commercial growing mixes are described on page 12. Applicant admits in arguments that the medium in Dupuis et al contains a solid and a gas phase. Due to the lack of a specific definition for “three-phase” and by using the logic above, a hydrated

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gel, such as taught by Dupuis et al, is a three-phase medium in that it comprises a solid and a gas as argued by Applicant as well as liquid which is available to plants and plant tissues. In other words, liquid is held by the gel, but is available for plant tissue uptake and constitutes therefore one of the phases. Additionally, as Applicants admit, Dupuis et al state that a liquid medium (three-phase as further admitted by Applicant at the bottom of page 8 of the arguments) may be used.

Applicants also maintain that Dupuis et al do not teach applying nutrients by fogging, misting, or irrigation, however the application of nutrients by fogging or misting or irrigation is not claimed in either independent claim 53 or 57. In fact, Applicant states that on page 2, lines 23-29 of Dupuis et al that the medium may be renewed regularly as required, either continuously or discontinuously. Therefore, nutrient solutions may be applied at regular intervals as is claimed in the independent claims.

Although Applicants maintain that Dupuis et al do not teach non-sterile conditions, claim 1 of Dupuis et al quite clearly claims non sterile conditions in the first line as well as in other places in the text. Additionally, claim 57 is not drawn to non-sterile conditions.

The argument that the medium in Dupuis et al does not contain nutrients necessary for *ex vitro* germination is not to the point because this is not claimed in the instant independent claims either.

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7. Claims 5-20, 22-43, 45-49, and 53-57, remain rejected under 35 U.S.C. 103(a) as obvious over Carlson et al in view of Fujii et al. (The referenced Carlson et al was listed as US patent 5,486,218).

Applicant argues that Carlson et al is distinct from the present invention in which an embryo is contacted directly with a three phase substrate, preferably "naked" and is held in a controlled environment while being contacted with nutrient solutions, wherein in the instant application untreated embryos are provided with nutrients when *in situ* within or on a substrate such as soil or the like. Applicant additionally argues that Carlson et al teaches a two phase system that is a coating rather than as a substrate used for sowing. Applicant also argues that (irrigation, fogging, misting of) nutrient solutions are not taught and that there is no clear passage that conditions are non-sterile. Additionally, Applicant argues that Fig 7 does not support the contention that the embryo may be naked within a substrate. Finally, Applicants argue that there is no motivation to combine and that the present invention is not obvious from the combination of Carlson et al and Fuji et al.

These arguments have been carefully considered but are not considered persuasive for the following reasons:

As argued previously, the hydrated gel taught by Carlson et al can be considered a three-phase substrate, the independent claims 53 and 57 are not claiming a "naked" embryo, nor is such defined in the specification, and Carlson et al teach nutrient solutions at column 7, lines 63-64

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("...allow nutrients dissolved therein to be transferred via water to the embryo-containing gel unit."), for example.

It is not clear what an untreated embryo is. Regardless, it, and providing it with nutrients when *in situ* within or on a substrate such as soil or the like is not claimed in independent claims 53 or 57.

Although Carlson et al teaches a three-phase system that is a coating, independent claims 53 and 57 claim that a somatic embryo can be placed on or **within** a substrate as one would place an embryo inside a coating. The claims do not mention sowing, nor is three-phase substrate defined in the specification in a manner that precludes a hydrated gel from being a three-phase substrate, nor is the substrate defined in the claim in such a manner as to preclude a hydrated gel from being such a substrate. Irrigation of nutrient solutions are taught at column 7, lines 63-64. Although the gel medium is sterilized prior to the addition of the somatic embryo, the capsule can be deposited in the soil (column 13, lines 58-64), indicating non-sterile conditions. Furthermore, independent claim 57 does not require non-sterile conditions.

Although the Examiner argues that Fig 7 does support the contention that the embryo may be naked within a substrate, the argument is irrelevant since the independent claims are not drawn to a naked embryo.

Carlson et al teaches the independent claims. Fujii et al fills in the gap with minor deviations such as the addition of microdroplets, specific moisture levels, atmospheric humidity, nutrient and pesticide applications, embryo desiccation, type of horticultural containers, material

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covering the substrate, and seeding equipment. These are all obvious variants, well-known in the art and exemplified by Fujii et al for example. As the claims are currently written, they are so broad that they include the three-phase substrate of hydrated gel well known in the art.

8. Claims 5-20, 22-43, 45-49, and 53-57, remain rejected under 35 U.S.C. 103(a) as obvious over each Dupuis et al and Fujii et al.

Applicant argues that both references lack the concept of treating the embryo with a nutrient solution following sowing.

This argument has been carefully considered but is not persuasive because the independent claims 53 and 57 do not claim treating the embryo with a nutrient solution following sowing. There is no indication in the claims that the three-phase substrate is soil or other horticultural substrate comprised of peat, perlite or the such. There is also no indication that the somatic embryos are planted, sown, or irrigated in an agronomic sense. The claims are so broadly written they read on any somatic embryo in a primarily liquid medium or in a gel as discussed above. A non-sterile environment is also common in the literature by the addition of fungicides, bactericides, and the like. Manipulating a factor to facilitate germination of somatic embryos is well-known in the art by supplying ABA for example. The application of nutrient solutions is not novel and commonly fertilizer is applied to growing plant tissues.

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Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

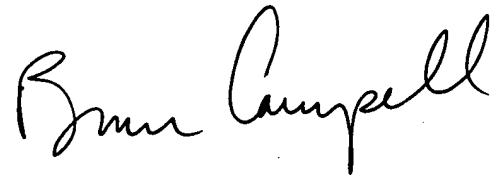
No claim is allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne Marie Grünberg whose telephone number is (703) 305-0805. The examiner can normally be reached from Monday through Thursday from 7:30 until 5:00, and every other Friday from 7:30 until 4:00.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Bruce Campell, can be reached at (703) 308-4205. The fax number for the unit is (703) 308-4242.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

A handwritten signature in black ink, reading "Bruce Campell". The signature is written in a cursive style with a large, looped "B" and a long, trailing "l" at the end of "Campell".

BRUCE R. CAMPELL
PRIMARY EXAMINER
GROUP 1800

AMG